

SYSTEMS AND METHODS FOR PROVIDING MULTI-
LAYER PROTECTION SWITCHING WITHIN A SUB-
NETWORKING CONNECTION

ABSTRACT OF THE DISCLOSURE

[0057] A subnetwork connection system is provided that includes line modules configured to receive traffic signals over bridged, individual corresponding channels. The line modules are grouped into sets at a lower protection layer, while the sets of line modules are organized into working legs and protection legs at an upper protection layer. The line modules are activated and deactivated based on different upper and lower protection schemes associated with the upper and lower protection layers. The subconnection system further includes state maps associated with each of the line modules. The state maps store state data that activates and deactivates the line modules. The state maps are updated in accordance with the lower protection scheme to permit intra-leg switching between the line modules in one of the working and protection legs. The state map is also updated in accordance with the upper protection scheme to perform inter-leg switching between a first line module in one of the working and protection legs and a second line module in the other of the working and protection legs. The subnetwork connection system also includes a network control module interconnected with the line modules. The control module performs inter-leg switching by updating the state data in the state maps for corresponding line modules in associated working and protection legs.